

SEQUENCE LISTING

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<120> Mammalian Cytokines; Related Reagents and Methods

<130> DX0935K

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<141> 2000-03-9

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<170> PatentIn Ver. 2.0

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gccccagccc catggacctc cgagcagggg actcgtgggg g atg tta gcg tgc ctg 176

Met Leu Ala Cys Leu

-15

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Cys Thr Val Leu Trp His Leu Pro Ala Val Pro Ala Leu Asn Arg Thr

-10

-5

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Gly Asp Pro Gly Pro Gly Pro Ser Ile Gln Lys Thr Tyr Asp Leu Thr

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cgc tac ctg gag cac caa ctc cgc agc ttg gct ggg acc tat ctg aac 320

Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala Gly Thr Tyr Leu Asn

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tac ctg ggc ccc cct ttc aac gag cca gac ttc aac cct ccc cgc ctg 368

Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe Asn Pro Pro Arg Leu

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ggg gca gag act ctg ccc agg gcc act gtt gac ttg gag gtg tgg cga 416
 Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asp Leu Glu Val Trp Arg
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agc ctc aat gac aaa ctg cgg ctg acc cag aac tac gag gcc tac agc 464
 Ser Leu Asn Asp Lys Leu Arg Leu Thr Gln Asn Tyr Glu Ala Tyr Ser
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cac ctt ctg tgt tac ttg cgt ggc ctc aac cgt cag gct gcc act gct 512
 His Leu Leu Cys Tyr Leu Arg Gly Leu Asn Arg Gln Ala Ala Thr Ala
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 Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr Ser Leu Gln Gly Leu
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 Gln Pro Leu Pro Gly Thr Glu Pro Thr Trp Thr Pro Gly Pro Ala His
 135 140 145

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 Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp Leu Leu Lys Glu Leu
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cag acc tgg ctg tgg cgc tgc gcc aag gac ttc aac cgg ctc aag aag 752
 Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe Asn Arg Leu Lys Lys
 165 170 175 180

aag atg cag cct cca gca gct gca gtc acc ctg cac ctg ggg gct cat 800
 Lys Met Gln Pro Pro Ala Ala Ala Val Thr Leu His Leu Gly Ala His
 185 190 195

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 Gly Phe

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 Thr Tyr Asp Leu Thr Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala
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 Gly Thr Tyr Leu Asn Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe
 35 40 45
 Asn Pro Pro Arg Leu Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asp
 50 55 60
 Leu Glu Val Trp Arg Ser Leu Asn Asp Lys Leu Arg Leu Thr Gln Asn
 65 70 75
 Tyr Glu Ala Tyr Ser His Leu Leu Cys Tyr Leu Arg Gly Leu Asn Arg
 80 85 90 95
 Gln Ala Ala Thr Ala Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr
 100 105 110
 Ser Leu Gln Gly Leu Leu Gly Ser Ile Ala Gly Val Met Ala Ala Leu
 115 120 125
 Gly Tyr Pro Leu Pro Gln Pro Leu Pro Gly Thr Glu Pro Thr Trp Thr
 130 135 140
 Pro Gly Pro Ala His Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp
 145 150 155
 Leu Leu Lys Glu Leu Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe
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His Leu Gly Ala His Gly Phe
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Ala Leu Asn Arg Thr Gly Asp Pro Gly Pro Gly Pro Ser Ile Gln Lys
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acc tat gac ctc acc cgc tac ctg gag cat caa ctc cgc agc tta gct 144
Thr Tyr Asp Leu Thr Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala
20 25 30
ggg acc tac ctg aac tac ctg ggg ccc cct ttc aac gag cct gac ttc 192
Gly Thr Tyr Leu Asn Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe
35 40 45
aat cct cct cga ctg ggg gca gaa act ctg ccc agg gcc acg gtc aac 240
Asn Pro Pro Arg Leu Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asn
50 55 60
ttg gaa gtg tgg cga agc ctc aat gac agg ctg cgg ctg acc cag aac 288
Leu Glu Val Trp Arg Ser Leu Asn Asp Arg Leu Arg Leu Thr Gln Asn
65 70 75
tat gag gcg tac agt cac ctc ctg tgt tac ttg cgt ggc ctc aac cgt 336
Tyr Glu Ala Tyr Ser His Leu Leu Cys Tyr Leu Arg Gly Leu Asn Arg
80 85 90 95
cag gct gcc aca gct gaa ctc cga cgt agc ctg gcc cac ttc tgt acc 384
Gln Ala Ala Thr Ala Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr
100 105 110
agc ctc cag ggc ctg ctg ggc agc att gca ggt gtc atg gcg acg ctt 432
Ser Leu Gln Gly Leu Leu Gly Ser Ile Ala Gly Val Met Ala Thr Leu
115 120 125

ggc tac cca ctg ccc cag cct ctg cca ggg act gag cca gcc tgg gcc 480
 Gly Tyr Pro Leu Pro Gln Pro Leu Pro Gly Thr Glu Pro Ala Trp Ala
 130 135 140

cct ggc cct gcc cac agt gac ttc ctc cag aag atg gat gac ttc tgg 528
 Pro Gly Pro Ala His Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp
 145 150 155

ctg ctg aag gag ctg cag acc tgg cta tgg cgt tca gcc aag gac ttc 576
 Leu Leu Lys Glu Leu Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe
 160 165 170 175

aac cgg ctt aag aag aag atg cag cct cca gca gct tca gtc acc ctg 624
 Asn Arg Leu Lys Lys Lys Met Gln Pro Pro Ala Ala Ser Val Thr Leu
 180 185 190

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 His Leu Glu Ala His Gly Phe
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Thr Tyr Asp Leu Thr Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala
 20 25 30

Gly Thr Tyr Leu Asn Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe
 35 40 45

Asn Pro Pro Arg Leu Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asn
 50 55 60

Leu Glu Val Trp Arg Ser Leu Asn Asp Arg Leu Arg Leu Thr Gln Asn
 65 70 75

Tyr Glu Ala Tyr Ser His Leu Leu Cys Tyr Leu Arg Gly Leu Asn Arg
 80 85 90 95

Gln Ala Ala Thr Ala Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr
 100 105 110

Ser Leu Gln Gly Leu Leu Gly Ser Ile Ala Gly Val Met Ala Thr Leu
 115 120 125

Gly Tyr Pro Leu Pro Gln Pro Leu Pro Gly Thr Glu Pro Ala Trp Ala
 130 135 140

Pro Gly Pro Ala His Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp
145 150 155

Leu Leu Lys Glu Leu Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe
160 165 170 175

Asn Arg Leu Lys Lys Lys Met Gln Pro Pro Ala Ala Ser Val Thr Leu
180 185 190

His Leu Glu Ala His Gly Phe
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<210> 5

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<212> PRT

<213> rodent

<400> 5

Met Lys Val Leu Ala Ala Gly Ile Val Pro Leu Leu Leu Val Leu
1 5 10 15

His Trp Lys His Gly Ala Gly Ser Pro Leu Pro Ile Thr Pro Val Asn
20 25 30

Ala Thr Cys Ala Ile Arg His Pro Cys His Gly Asn Leu Met Asn Gln
35 40 45

Ile Lys Asn Gln Leu Ala Gln Leu Asn Gly Ser Ala Asn Ala Leu Phe
50 55 60

Ile Ser Tyr Tyr Thr Ala Gln Gly Glu Pro Phe Pro Asn Asn Val Glu
65 70 75 80

Lys Leu Cys Ala Pro Asn Met Thr Asp Phe Pro Ser Phe His Gly Asn
85 90 95

Gly Thr Glu Lys Thr Lys Leu Val Glu Leu Tyr Arg Met Val Ala Tyr
100 105 110

Leu Ser Ala Ser Leu Thr Asn Ile Thr Arg Asp Gln Lys Val Leu Asn
115 120 125

Pro Thr Ala Val Ser Leu Gln Val Lys Leu Asn Ala Thr Ile Asp Val
130 135 140

Met Arg Gly Leu Leu Ser Asn Val Leu Cys Arg Leu Cys Asn Lys Tyr
145 150 155 160

Arg Val Gly His Val Asp Val Pro Pro Val Pro Asp His Ser Asp Lys
165 170 175

Glu Ala Phe Gln Arg Lys Lys Leu Gly Cys Gln Leu Leu Gly Thr Tyr
180 185 190

Lys Gln Val Ile Ser Val Val Val Gln Ala Phe

195

200

<210> 6

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<213> primate

<400> 6

Met Lys Val Leu Ala Ala Gly Val Val Pro Leu Leu Leu Val Leu His
 1 5 10 15

Trp Lys His Gly Ala Gly Ser Pro Leu Pro Ile Thr Pro Val Asn Ala
 20 25 30

Thr Cys Ala Ile Arg His Pro Cys His Asn Asn Leu Met Asn Gln Ile
 35 40 45

Arg Ser Gln Leu Ala Gln Leu Asn Gly Ser Ala Asn Ala Leu Phe Ile
 50 55 60

Leu Tyr Tyr Thr Ala Gln Gly Glu Pro Phe Pro Asn Asn Leu Asp Lys
 65 70 75 80

Leu Cys Gly Pro Asn Val Thr Asp Phe Pro Pro Phe His Ala Asn Gly
 85 90 95

Thr Glu Lys Ala Lys Leu Val Glu Leu Tyr Arg Ile Val Val Tyr Leu
 100 105 110

Gly Thr Ser Leu Gly Asn Ile Thr Arg Asp Gln Lys Ile Leu Asn Pro
 115 120 125

Ser Ala Leu Ser Leu His Ser Lys Leu Asn Ala Thr Ala Asp Ile Leu
 130 135 140

Arg Gly Leu Leu Ser Asn Val Leu Cys Arg Leu Cys Ser Lys Tyr His
 145 150 155 160

Val Gly His Val Asp Val Thr Tyr Gly Pro Asp Thr Ser Gly Lys Asp
 165 170 175

Val Phe Gln Lys Lys Lys Leu Gly Cys Gln Leu Leu Gly Lys Tyr Lys
 180 185 190

Gln Ile Ile Ala Val Leu Ala Gln Ala Phe
 195 200

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Met Ser Arg Arg Glu Gly Ser Leu Glu Asp Pro Gln Thr Asp Ser Ser
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Val Ser Leu Leu Pro His Leu Glu Ala Lys Ile Arg Gln Thr His Ser
20 25 30

Leu Ala His Leu Leu Thr Lys Tyr Ala Glu Gln Leu Leu Gln Glu Tyr
35 40 45

Val Gln Leu Gln Gly Asp Pro Phe Gly Leu Pro Ser Phe Ser Pro Pro
50 55 60

Arg Leu Pro Val Ala Gly Leu Ser Ala Pro Ala Pro Ser His Ala Gly
65 70 75 80

Leu Pro Val His Glu Arg Leu Arg Leu Asp Ala Ala Ala Leu Ala Ala
85 90 95

Leu Pro Pro Leu Leu Asp Ala Val Cys Arg Arg Gln Ala Glu Leu Asn
100 105 110

Pro Arg Ala Pro Arg Leu Leu Arg Arg Leu Glu Asp Ala Ala Arg Gln
115 120 125

Ala Arg Ala Leu Gly Ala Ala Val Glu Ala Leu Leu Ala Ala Leu Gly
130 135 140

Ala Ala Asn Arg Gly Pro Arg Ala Glu Pro Pro Ala Ala Thr Ala Ser
145 150 155 160

Ala Ala Ser Ala Thr Gly Val Phe Pro Ala Lys Val Leu Gly Leu Arg
165 170 175

Val Cys Gly Leu Tyr Arg Glu Trp Leu Ser Arg Thr Glu Gly Asp Leu
180 185 190

Gly Gln Leu Leu Pro Gly Gly Ser Ala
195 200

<210> 8

<211> 203

<212> PRT

<213> rodent

<400> 8

Met Ser Gln Arg Glu Gly Ser Leu Glu Asp His Gln Thr Asp Ser Ser
1 5 10 15

Ile Ser Phe Leu Pro His Leu Glu Ala Lys Ile Arg Gln Thr His Asn
20 25 30

Leu Ala Arg Leu Leu Thr Lys Tyr Ala Glu Gln Leu Leu Glu Glu Tyr
35 40 45

Val Gln Gln Gln Gly Glu Pro Phe Gly Leu Pro Gly Phe Ser Pro Pro
50 55 60

Arg Leu Pro Leu Ala Gly Leu Ser Gly Pro Ala Pro Ser His Ala Gly

65		70		75		80
Leu Pro Val Ser	Glu Arg Leu Arg	Gln Asp Ala Ala	Ala Leu Ser Val			
	85		90			95
Leu Pro Ala Leu	Leu Asp Ala Val	Arg Arg Arg Gln	Ala Glu Leu Asn			
	100		105			110
Pro Arg Ala Pro	Arg Leu Leu Arg	Ser Leu Glu Asp	Ala Ala Arg Gln			
	115		120			125
Val Arg Ala Leu	Gly Ala Ala Val	Glu Thr Val Leu	Ala Ala Leu Gly			
	130		135			140
Ala Ala Ala Arg	Gly Pro Gly Pro	Glu Pro Val Thr	Val Ala Thr Leu			
	145		150			155
Phe Thr Ala Asn	Ser Thr Ala Gly	Ile Phe Ser Ala	Lys Val Leu Gly			
	165		170			175
Phe His Val Cys	Gly Leu Tyr Gly	Glu Trp Val Ser	Arg Thr Glu Gly			
	180		185			190
Asp Leu Gly Gln	Leu Val Pro Gly	Gly Val Ala				
	195		200			

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<400> 9

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Cys Ser Arg Ser	Ile Trp Leu Ala	Arg Lys Ile Arg	Ser Asp Leu Thr
	20	25	30
Ala Leu Thr Glu	Ser Tyr Val Lys	His Gln Gly Leu	Asn Lys Asn Ile
	35	40	45
Asn Leu Asp Ser	Ala Asp Gly Met	Pro Val Ala Ser	Thr Asp Gln Trp
	50	55	60
Ser Glu Leu Thr	Glu Ala Glu Arg	Leu Gln Glu Asn	Leu Gln Ala Tyr
65	70	75	80
Arg Thr Phe His	Val Leu Leu Ala	Arg Leu Leu Glu	Asp Gln Gln Val
	85	90	95
His Phe Thr Pro	Thr Glu Gly Asp	Phe His Gln Ala	Ile His Thr Leu
	100	105	110
Leu Leu Gln Val	Ala Ala Phe Ala	Tyr Gln Ile Glu	Glu Leu Met Ile
	115	120	125

Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
130 135 140

Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160

Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175

Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
180 185 190

Tyr Ile Ala Asn Asn Lys Lys Met
195 200

<210> 10

<211> 198

<212> PRT

<213> rodent

<400> 10

Met Ala Phe Ala Glu Gln Ser Pro Leu Thr Leu His Arg Arg Asp Leu
1 5 10 15

Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30

Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45

Ser Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp
50 55 60

Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80

Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val
85 90 95

His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110

Thr Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Ala
115 120 125

Leu Leu Glu Gln Lys Val Pro Glu Lys Glu Ala Asp Gly Met Pro Val
130 135 140

Thr Ile Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160

Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175

Arg Val Ile Ser Ser His His Met Gly Ile Ser Ala His Glu Ser His
180 185 190

Tyr Gly Ala Lys Gln Met
195

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<400> 11

Met Thr His Leu Ser Leu Leu Gly Pro Leu Pro Cys Val Arg Thr Ser
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Gln Gln Leu Pro Glu Thr Gln Gln Val Thr Thr Pro Gly Lys Lys Pro
20 25 30

Val Ser Val Gly Arg Arg Glu Val Arg Val Pro Gly Thr Ala Leu Val
35 40 45

Pro Ser Leu Leu Ser Val Ser Val Leu Leu Gln Leu Gln Tyr Gln Gly
50 55 60

Ser Pro Phe Ser Asp Pro Gly Phe Ser Ala Pro Glu Leu Gln Leu Ser
65 70 75 80

Ser Leu Pro Pro Ala Thr Ala Phe Phe Lys Thr Trp His Ala Leu Asp
85 90 95

Asp Gly Glu Arg Leu Ser Leu Ala Gln Arg Ala Ile Asp Pro His Leu
100 105 110

Gln Leu Val Glu Asp Asp Gln Ser Asp Leu Asn Pro Gly Ser Pro Ile
115 120 125

Leu Pro Ala Gln Leu Gly Ala Ala Arg Leu Arg Ala Gln Gly Pro Leu
130 135 140

Gly Asn Met Ala Ala Ile Met Thr Ala Leu Gly Leu Pro Ile Pro Pro
145 150 155 160

Glu Glu Asp Thr Pro Gly Leu Ala Ala Phe Gly Ala Ser Ala Phe Glu
165 170 175

Arg Lys Cys Arg Gly Tyr Val Val Thr Arg Glu Tyr Gly His Trp Thr
180 185 190

Asp Arg Ala Val Arg Asp Leu Ala Leu Leu Lys Ala Lys Tyr Ser Ala
195 200 205

<210> 12
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<213> primate

<400> 12

Met Pro Ala Gly Arg Arg Gly Pro Ala Ala Gln Ser Ala Arg Arg Pro
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Pro Pro Leu Leu Pro Leu Leu Leu Leu Leu Cys Val Leu Gly Ala Pro
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Arg Ala Gly Ser Gly Ala His Thr Ala Val Ile Ser Pro Gln Asp Pro
35 40 45
Thr Leu Leu Ile Gly Ser Ser Leu Leu Ala Thr Cys Ser Val His Gly
50 55 60
Asp Pro Pro Gly Ala Thr Ala Glu Gly Leu Tyr Trp Thr Leu Asn Gly
65 70 75 80
Arg Arg Leu Pro Pro Glu Leu Ser Arg Val Leu Asn Ala Ser Thr Leu
85 90 95
Ala Leu Ala Leu Ala Asn Leu Asn Gly Ser Arg Gln Arg Ser Gly Asp
100 105 110
Asn Leu Val Cys His Ala Arg Asp Gly Ser Ile Leu Ala Gly Ser Cys
115 120 125
Leu Tyr Val Gly Leu Pro Pro Glu Lys Pro Val Asn Ile Ser Cys Trp
130 135 140
Ser Lys Asn Met Lys Asp Leu Thr Cys Arg Trp Thr Pro Gly Ala His
145 150 155 160
Gly Glu Thr Phe Leu His Thr Asn Tyr Ser Leu Lys Tyr Lys Leu Arg
165 170 175
Trp Tyr Gly Gln Asp Asn Thr Cys Glu Glu Tyr His Thr Val Gly Pro
180 185 190
His Ser Cys His Ile Pro Lys Asp Leu Ala Leu Phe Thr Pro Tyr Glu
195 200 205
Ile Trp Val Glu Ala Thr Asn Arg Leu Gly Ser Ala Arg Ser Asp Val
210 215 220
Leu Thr Leu Asp Ile Leu Asp Val Val Thr Thr Asp Pro Pro Pro Asp
225 230 235 240
Val His Val Ser Arg Val Gly Gly Leu Glu Asp Gln Leu Ser Val Arg
245 250 255
Trp Val Ser Pro Pro Ala Leu Lys Asp Phe Leu Phe Gln Ala Lys Tyr
260 265 270
Gln Ile Arg Tyr Arg Val Glu Asp Ser Val Asp Trp Lys Val Val Asp
275 280 285

Asp Val Ser Asn Gln Thr Ser Cys Arg Leu Ala Gly Leu Lys Pro Gly
 290 295 300
 Thr Val Tyr Phe Val Gln Val Arg Cys Asn Pro Phe Gly Ile Tyr Gly
 305 310 315 320
 Ser Lys Lys Ala Gly Ile Trp Ser Glu Trp Ser His Pro Thr Ala Ala
 325 330 335
 Ser Thr Pro Arg Ser Glu Arg Pro Gly Pro Gly Gly Gly Ala Cys Glu
 340 345 350
 Pro Arg Gly Gly Glu Pro Ser Ser Gly Pro Val Arg Arg Glu Leu Lys
 355 360 365
 Gln Phe Leu Gly Trp Leu Lys Lys His Ala Tyr Cys Ser Asn Leu Ser
 370 375 380
 Phe Arg Leu Tyr Asp Gln Trp Arg Ala Trp Met Gln Lys Ser His Lys
 385 390 395 400
 Thr Arg Asn Gln Val Leu Pro Asp Lys Leu
 405 410

<210> 13
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 <212> PRT
 <213> rodent

<400> 13
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 Val Pro Arg Gly Gly Ser Gly Ala His Thr Ala Val Ile Ser Pro Gln
 20 25 30
 Asp Pro Thr Leu Leu Ile Gly Ser Ser Leu Gln Ala Thr Cys Ser Ile
 35 40 45
 His Gly Asp Thr Pro Gly Ala Thr Ala Glu Gly Leu Tyr Trp Thr Leu
 50 55 60
 Asn Gly Arg Arg Leu Pro Ser Leu Ser Arg Leu Leu Asn Thr Ser Thr
 65 70 75 80
 Leu Ala Leu Ala Leu Ala Asn Leu Asn Gly Ser Arg Gln Gln Ser Gly
 85 90 95
 Asp Asn Leu Val Cys His Ala Arg Asp Gly Ser Ile Leu Ala Gly Ser
 100 105 110
 Cys Leu Tyr Val Gly Leu Pro Pro Glu Lys Pro Phe Asn Ile Ser Cys
 115 120 125
 Trp Ser Arg Asn Met Lys Asp Leu Thr Cys Arg Trp Thr Pro Gly Ala
 130 135 140

His Gly Glu Thr Phe Leu His Thr Asn Tyr Ser Leu Lys Tyr Lys Leu
 145 150 155 160
 Arg Trp Tyr Gly Gln Asp Asn Thr Cys Glu Glu Tyr His Thr Val Gly
 165 170 175
 Pro His Ser Cys His Ile Pro Lys Asp Leu Ala Leu Phe Thr Pro Tyr
 180 185 190
 Glu Ile Trp Val Glu Ala Thr Asn Arg Leu Gly Ser Ala Arg Ser Asp
 195 200 205
 Val Leu Thr Leu Asp Val Leu Asp Val Val Thr Thr Asp Pro Pro Pro
 210 215 220
 Asp Val His Val Ser Arg Val Gly Gly Leu Glu Asp Gln Leu Ser Val
 225 230 235 240
 Arg Trp Val Ser Pro Pro Ala Leu Lys Asp Phe Leu Phe Gln Ala Lys
 245 250 255
 Tyr Gln Ile Arg Tyr Arg Val Glu Asp Ser Val Asp Trp Lys Val Val
 260 265 270
 Asp Asp Val Ser Asn Gln Thr Ser Cys Arg Leu Ala Gly Leu Lys Pro
 275 280 285
 Gly Thr Val Tyr Phe Val Gln Val Arg Cys Asn Pro Phe Gly Ile Tyr
 290 295 300
 Gly Ser Lys Lys Ala Gly Ile Trp Ser Glu Trp Ser His Pro Thr Ala
 305 310 315 320
 Ala Ser Thr Pro Arg Ser Glu Arg Pro Gly Pro Gly Gly Gly Val Cys
 325 330 335
 Glu Pro Arg Gly Gly Glu Pro Ser Ser Gly Pro Val Arg Arg Glu Leu
 340 345 350
 Lys Gln Phe Leu Gly Trp Leu Lys Lys His Ala Tyr Cys Ser Asn Leu
 355 360 365
 Ser Phe Arg Leu Tyr Asp Gln Trp Arg Ala Trp Met Gln Lys Ser His
 370 375 380
 Lys Thr Arg Asn Gln Asp Glu Gly Ile Leu Pro Ser Gly Arg Arg Gly
 385 390 395 400
 Ala Ala Arg Gly Pro Ala Gly
 405